

6.0 Regulatory Framework

This section describes the regulatory framework affecting the alternatives, including the permit requirements associated with the alternatives. The U.S. Department of Energy (DOE) has procedures implementing the National Environmental Policy Act (NEPA) (42 USC 4321 et seq.) in the Code of Federal Regulations (CFR) (10 CFR 1021). Section 1021.103 of the procedures adopts the Council on Environmental Quality (CEQ) regulations at 40 CFR 1500–1508 for implementing NEPA. This Hanford Site Solid (Radioactive and Hazardous) Waste Program Environmental Impact Statement (HSW EIS) was prepared in accordance with the DOE and CEQ NEPA implementing procedures.

6.1 Potentially Applicable Statutes

Significant statutes with potential applicability to the subject matter of the HSW EIS are listed below. Federal statutes are discussed in Section 6.1.1. Washington State Statutes are discussed in Section 6.1.2.

6.1.1 Federal Statutes

- **American Antiquities Preservation Act (16 USC 431 et seq.)**
The American Antiquities Preservation Act protects historic and prehistoric ruins, monuments, and antiquities, including paleontological resources, on federally controlled lands.
- **American Indian Religious Freedom Act (42 USC 1996)**
The American Indian Religious Freedom Act states that it will be the policy of the United States to protect and preserve for American Indians their inherent right of freedom to believe, express, and exercise the traditional religions of the American Indian, Eskimo, Aleut, and Native Hawaiians, including, but not limited to, access to sites, use and possession of sacred objects, and the freedom to worship through ceremonies and traditional rites.
- **Archaeological and Historic Preservation Act (16 USC 469 et seq.)**
The purpose of the Archaeological and Historic Preservation Act is to provide for the preservation of historical and archeological data (including relics and specimens) that might otherwise be irreparably lost or destroyed as the result of federal actions.
- **Archaeological Resources Protection Act (16 USC 470aa et seq.)**
The Archaeological Resources Protection Act requires a permit for any excavation or removal of archaeological resources from federal or Indian lands. Excavations must be undertaken for the purpose of furthering archaeological knowledge in the public interest, and resources removed are to remain the property of the United States. Consent must be obtained from the Indian Tribe or the federal agency having authority over the land on which a resource is located before issuance of a permit. The permit must contain terms and conditions requested by the Tribe or federal agency.

- **Atomic Energy Act (42 USC 2011 et seq.)**

The Atomic Energy Act (AEA) provides the fundamental jurisdictional authority to DOE and the Nuclear Regulatory Commission (NRC) over governmental and commercial use of nuclear materials. The AEA authorizes DOE to establish standards to protect health or minimize dangers to life or property with respect to activities under DOE jurisdiction. The DOE has used a series of departmental orders and regulations to establish an extensive system of standards and requirements to ensure safe operation of DOE facilities. The AEA gives the Environmental Protection Agency (EPA) the authority to develop generally applicable standards for protection of the general environment from radioactive materials. The EPA has promulgated several regulations under this authority.

- **Bald and Golden Eagle Protection Act (16 USC 668 et seq.)**

The Bald and Golden Eagle Protection Act makes it unlawful to take, pursue, molest, or disturb bald and golden eagles, their nests, or their eggs anywhere in the United States. A permit must be obtained from the U.S. Department of the Interior to relocate a nest that interferes with resource development or recovery operations.

- **Clean Air Act (42 USC 7401 et seq.)**

The Clean Air Act (CAA) is intended to “protect and enhance the quality of the Nation’s air resources so as to promote the public health and welfare and the productive capacity of its population.”

Section 118 of the CAA requires each federal agency, with jurisdiction over properties or facilities engaged in any activity that might result in the discharge of air pollutants, to comply with all federal, state, interstate, and local requirements with regard to the control and abatement of air pollution.

Section 109 of the CAA directs EPA to set national ambient air quality standards (NAAQS) for criteria pollutants. EPA has identified and set NAAQS for the following criteria pollutants: particulate matter, sulfur dioxide, carbon monoxide, ozone, nitrogen dioxide, and lead. The NAAQS are set out in 40 CFR 50. Section 111 of the CAA requires establishment of national performance standards for new or modified stationary sources of atmospheric pollutants. Specific emission increases must be evaluated in order to prevent significant deterioration of air quality. Emissions of air pollutants are regulated by the EPA in 40 CFR 50-99. Emissions of radionuclides and hazardous air pollutants are regulated under the National Emissions Standards for Hazardous Air Pollutants Program (40 CFR 61 and 40 CFR 63).

- **Clean Water Act (CWA) (33 USC 1251 et seq.) (the CWA is also known as the Federal Water Pollution Control Act)**

The Clean Water Act (CWA) was enacted to “restore and maintain the chemical, physical, and biological integrity of the Nation’s water.” The CWA prohibits “discharge of toxic pollutants in toxic amounts” to navigable waters of the United States. Section 313 of the CWA requires all branches of the federal government with jurisdiction over properties or facilities engaged in any activity that might result in a discharge or runoff of pollutants to surface waters, to comply with federal, state, interstate, and local requirements. In addition to setting water quality standards for waterways, the CWA provides guidelines and limitations for effluent discharges from point sources and gives authority for the EPA to implement the National Pollutant Discharge Elimination System (NPDES) Permitting Program. Stormwater discharges are regulated under the NPDES Program.

- **Comprehensive Environmental Response, Compensation, and Liability Act as amended by the Superfund Amendments and Reauthorization Act (42 USC 9601 et seq.)**

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) provides a statutory framework for the remediation of waste sites containing hazardous substances and, as amended by the Superfund Amendments and Reauthorization Act, an emergency response program in the event a release (or threat of a release) of a hazardous substance to the environment occurs. Using a hazard ranking system, federal and private contaminated sites are ranked and may be included on the National Priorities List. CERCLA requires federal facilities with contaminated sites to undertake investigations, remediation, and natural resource restoration, as necessary.

- **Emergency Planning and Community Right-to-Know Act (42 USC 11001 et seq.)**

Federal facilities are required under Subtitle A of the Emergency Planning and Community Right-to-Know Act to provide information regarding the inventories of chemicals used or stored at a site and releases from that site to EPA and the state and local emergency response offices. The goal of providing this information is to ensure that emergency plans are sufficient to respond to unplanned releases of hazardous substances. The required information includes inventories of specific chemicals used or stored and descriptions of releases that occur from sites.

- **Endangered Species Act (16 USC 1531 et seq.)**

The Endangered Species Act is intended to prevent further decline of endangered and threatened species and to restore those species and their habitats. Section 7 of the act requires federal agencies to consult with the U.S. Fish and Wildlife Service (FWS) and the National Marine Fisheries Service to ensure that any action carried out by the agency is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of any critical habitat for such species.

- **Fish and Wildlife Coordination Act (16 USC 661 et seq.)**

The Fish and Wildlife Coordination Act promotes more effectual planning and cooperation between federal, state, public, and private agencies for the conservation and rehabilitation of the nation's fish and wildlife. The act requires federal agencies to consult with the FWS whenever they plan to conduct, license, or permit an activity involving the impoundment, diversion, deepening, control, or modification of a stream or body of water. The act also requires consultation with the head of the state agency that administers wildlife resources in the affected state. The purpose of this process is to promote conservation of wildlife resources by preventing loss of and damage to such resources and to provide for the development and improvement of wildlife resources in connection with the agency action.

- **Hazardous Materials Transportation Act (49 USC 5101 et seq.)**

The Hazardous Materials Transportation Act authorizes the U.S. Department of Transportation to regulate the transportation of hazardous materials by rail, aircraft, vessel, and public highway. Hazardous materials are defined as those chemicals that the Department of Transportation has determined pose unreasonable risks to health, safety, and property during transport activities. The statute and its implementing regulations address issues such as shipping papers to identify and track

hazardous materials, packaging and container design, marking, labeling, and performance standards, and employee and public training programs. The regulations also contain specific requirements relating to the type of shipment being used (i.e., rail, aircraft, vessel, and public highway).

- **Migratory Bird Treaty Act (16 USC 703 et seq.)**

The Migratory Bird Treaty Act is intended to protect birds that have common migration patterns between the United States and Canada, Mexico, Japan, and Russia. The act regulates the harvest of migratory birds by specifying factors such as the mode of harvest, hunting seasons, and bag limits. The act stipulates that, except as permitted by regulations, it is unlawful at any time, by any means, or in any manner to pursue, hunt, take, capture, or kill any migratory bird.

- **National Historic Preservation Act (16 USC 470 et seq.)**

The National Historic Preservation Act provides for placement of sites with significant national historic value on the National Register of Historic Places. Permits and certifications are not required under the act; however, consultation with the Advisory Council on Historic Preservation is required if a federal undertaking might impact a historic property resource. This consultation generally results in a memorandum of agreement that includes stipulations to minimize adverse impacts to the historic resource. Coordination with the State Historic Preservation Office is undertaken to ensure that potentially significant sites are properly identified, and appropriate mitigation measures are implemented.

- **Native American Graves Protection and Repatriation Act (25 USC 3001 et seq.)**

The Native American Graves Protection and Repatriation Act directs the Secretary of the Interior to guide federal agencies in the repatriation of federal archaeological collections and collections affiliated culturally to American Indian Tribes that are currently held by museums receiving federal funding. This act establishes provisions for the treatment of inadvertent discoveries of American Indians' remains and cultural objects. When discoveries are made during ground-disturbing activities, the following steps are to occur: 1) activity in the area of the discovery is to cease immediately, 2) reasonable efforts are to be made to protect the items discovered, 3) notice of discovery is to be given to the federal agency and the appropriate Tribes, and 4) a period of 30 days is to be set aside following notification for negotiations regarding the appropriate disposition of the discovered items.

- **National Environmental Policy Act (42 USC 4321 et seq.)**

The National Environmental Policy Act (NEPA) establishes a national policy that encourages awareness of the environmental consequences of human activities and promotes consideration of those environmental consequences during the planning and implementing stages of a project. Under NEPA, federal agencies are required to prepare detailed statements to address the environmental effects of proposed major federal actions that might significantly affect the quality of the human environment.

- **Pollution Prevention Act (42 USC 13101 et seq.)**

The Pollution Prevention Act establishes a national policy that pollution should be prevented or reduced at the source whenever feasible; pollution that cannot be prevented should be recycled in an environmentally safe manner, whenever feasible; pollution that cannot be prevented or recycled should be treated in an environmentally safe manner whenever feasible; and disposal or other release into the environment should be employed only as a last resort and should be conducted in an environmentally safe manner.

- **Resource Conservation and Recovery Act (RCRA) of 1976 as amended by the Hazardous and Solid Waste Amendments (42 USC 6901 et seq.) of 1984 (RCRA is also known as the Solid Waste Disposal Act)**

The treatment, storage, and/or disposal of hazardous and nonhazardous waste is regulated under the Solid Waste Disposal Act of 1965, which was amended by the Resource Conservation and Recovery Act of 1976 (RCRA), and the Hazardous and Solid Waste Amendments of 1984. Any state that seeks to administer and enforce a hazardous waste program pursuant to RCRA may apply for EPA authorization of the state program. The Washington State Department of Ecology (Ecology) has been delegated the authority for implementing the federal RCRA program in the state of Washington. The EPA regulations implementing RCRA define hazardous wastes and specify the transportation, handling, and waste management requirements of these wastes (40 CFR 260-282).

The Federal Facilities Compliance Act of 1992 (FFCA) (Public Law 102-386) amends RCRA and waives sovereign immunity for fines and penalties for RCRA violations at federal facilities. A provision of the FFCA postpones fines and penalties for 3 years for mixed waste storage prohibition violations at DOE sites and requires DOE to prepare plans for developing the required treatment capacity for mixed waste stored or generated at each facility. Each plan must be approved by the host state or the EPA after consultation with other affected states, and a consent order requiring compliance with the plan must be issued by the regulator. The FFCA also states that DOE will not be subject to fines and penalties for land disposal restriction storage prohibition violations for mixed waste as long as DOE is in compliance with an approved plan and consent order and meets all other applicable regulations. DOE, EPA, and the State of Washington had an existing plan (i.e., the Hanford Federal Facility Agreement and Consent Order [Tri-Party Agreement] [Ecology et al. 1989]) addressing compliance with the land disposal restrictions storage prohibition for mixed waste at the time this law was enacted.

- **Safe Drinking Water Act (42 USC 300f et seq.)**

The primary objective of the Safe Drinking Water Act is to protect the quality of public water supplies. The act grants EPA the authority to protect the quality of public drinking water supplies by establishing national primary drinking water regulations. EPA delegates authority for enforcement of the standards to the states. EPA regulations specify maximum contaminant levels in public water systems.

- **Toxic Substances Control Act (15 USC 2601 et seq.)**

The Toxic Substances Control Act provides EPA with the authority to require testing of chemical substances (both new and old) entering the environment and, where necessary, to regulate those chemicals. TSCA also regulates the treatment, storage, and disposal of certain toxic substances (e.g., polychlorinated biphenyls, chlorofluorocarbons, asbestos, dioxins, certain metal-working fluids, and hexavalent chromium).

- **Waste Isolation Pilot Plant Land Withdrawal Act (Public Law 102-579) and the Waste Isolation Pilot Plant Land Withdrawal Act Amendments (Public Law 104-201)**

The Waste Isolation Pilot Plant Land Withdrawal Act withdrew land from the public domain for the purposes of creating and operating the Waste Isolation Pilot Plant (WIPP), the geologic repository in New Mexico designated as the national disposal site for defense TRU waste. The act also defines the characteristics and amount of waste that will be disposed of at the facility. The amendments to the act exempt waste to be disposed of at WIPP from the RCRA land disposal restrictions.

6.1.2 Washington State Statutes

- **Washington State Hazardous Waste Management Act (RCW 70.105)**

The Washington Hazardous Waste Management Act grants Ecology authority to regulate the disposal of hazardous wastes in Washington and to implement waste reduction and prevention programs. Ecology has adopted extensive regulations that are found in chapter 173-303 of the Washington Administrative Code (WAC).

Washington State received authorization on January 30, 1986, effective January 31, 1986 (51 FR 3782), to implement the state's dangerous waste management program in lieu of the Federal RCRA hazardous waste management program. EPA has also granted authorization for various changes and updates to Washington's dangerous waste management program on September 22, 1987, effective on November 23, 1987 (52 FR 35556); August 17, 1990, effective October 16, 1990 (55 FR 33695); November 4, 1994, effective November 4, 1994 (59 FR 55322); February 29, 1996, effective April 29, 1996 (61 FR 7736); September 22, 1998, effective October 22, 1998 (63 FR 50531); on October 12, 1999, effective January 11, 2000 (64 FR 55142); and on April 11, 2002, effective April 11, 2002 (67 FR 17636).

- **Washington Clean Air Act (RCW 70.94)**

Most of the provisions of the Washington Clean Air Act mirror the requirements of the Federal Clean Air Act. The Federal Clean Air Act establishes a minimum or "floor" for Washington air quality programs. The Washington Clean Air Act authorizes Ecology and local air pollution control authorities to implement programs consistent with the Federal Clean Air Act. For example, the Washington Clean Air Act authorizes an operating permit program, enhanced civil penalties, new administrative enforcement provisions, motor vehicle inspections, and provisions addressing ozone and acid rain.

Ecology has an extensive set of regulations governing toxic air pollutants (WAC 173-460). These regulations are similar to the programs for regulating hazardous air pollutants under the Federal Clean Air Act. In contrast to the Federal Clean Air Act program, which applies to new and existing emission sources, the toxic air pollutant rules apply only to new sources and any modification of an existing source where the modification will increase emissions of toxic air pollutants. Ecology's toxic air pollutant rules are implemented under the New Source Review Program.

The Washington State Department of Health regulations, "Radiation Protection—Air Emissions" (WAC 246-247), contain standards and permit requirements for the emission of radionuclides to the atmosphere from DOE facilities based on Ecology standards, "Ambient Air Quality Standards and Emission Limits for Radionuclides" (WAC 173-480).

The local air authority, Benton Clean Air Authority, enforces regulations pertaining to detrimental effects, fugitive dust, incineration products, odor, opacity, asbestos, and sulfur oxide emissions. The Authority also has been delegated authority to enforce the EPA asbestos regulations.

- **Washington State Environmental Policy Act (RCW 43.21C)**

The Washington State legislature enacted the State Environmental Policy Act (SEPA) in 1971. Regulations implementing the act are in WAC 197-11. The purpose and policy sections of the statute are extremely broad, including recognition by the legislature that "each person has a fundamental and inalienable right to a healthful environment..." SEPA contains a substantive mandate that "policies, regulations, and laws of the State of Washington shall be interpreted and administered in accordance with the policies set forth in [SEPA]."

SEPA applies to all branches of state government, including state agencies, municipal and public corporations, and counties. It requires each agency to develop procedures implementing and supplementing SEPA requirements. Although SEPA does not apply directly to federal actions, the term "government action" with respect to state agencies is defined to include the issuance of licenses, permits, and approvals. Thus, as in NEPA, proposals (federal, state, or private) are evaluated, and may be conditioned or denied through the permit process, based on environmental considerations. SEPA does not create an independent permit requirement but overlays all existing Washington State agency permitting activities.

- **Model Toxics Control Act (RCW 70.105D)**

This act is implemented through the Hazardous Waste Cleanup – Model Toxics Control Act regulations found under WAC 173-340. The primary goal of these regulations is to provide a workable process to accomplish effective and expeditious cleanups that are not being conducted under CERCLA, in a manner that protects human health and the environment. It is primarily intended to address releases of hazardous substances caused by past activities, although its provisions may be applied to potential and ongoing releases of hazardous substances from current activities. These regulations also provide methodologies for calculating numeric cleanup levels for soils, groundwater, surface water, and air.

- **Water Pollution Control Act (RCW 90.48)**

The Washington Water Pollution Control Act establishes a permit system to license and control the discharge of pollutants into waters of the state. Under the permit system, dischargers must reduce releases to a level determined to be technologically and economically achievable, regardless of the condition of the receiving water. Dischargers also must maintain or improve the condition of the receiving water. The state has a general policy prohibiting degradation of existing water quality, and a variety of approaches are used to address the problem of toxic pollutants. Permits are required for both point-source and nonpoint source discharges.

Many of the preceding federal and Washington State statutes are further discussed in the following sections.

6.2 Land-Use Management

In September 1999, DOE issued the *Final Hanford Comprehensive Land-Use Plan Environmental Impact Statement* (DOE 1999). The Record of Decision (ROD) issued in November 1999 (64 FR 61615) states that the purpose of the land-use plan and its implementing policies is to facilitate decision making about Hanford Site uses and facilities over at least the next 50 years. The ROD adopts the Preferred Alternative land-use maps, designations, policies, and implementing procedures as described in the 1999 EIS and designates the Central Plateau (200 Areas) for Industrial-Exclusive use (Figure 4.2). This designation would allow for continued waste management operations in the 200 Areas.

The Hanford Reach National Monument was created on June 9, 2000, by a proclamation (65 FR 37253) signed by President Clinton under the authority of the Antiquities Act of 1906 (16 USC 431 et seq.). The Monument includes 792.6 km² (306 mi²) of federally owned land making up a portion of the Hanford Site (Figure 4.3). The principal components of the Monument are the Fitzner/Eberhardt Arid Lands Ecology Reserve (ALE), the McGee Ranch and Riverlands area, the Saddle Mountain National Wildlife Refuge, the quarter mile Hanford Reach Act (Hanford Reach Act [1988] as amended by Public Law 104-333) study strip along the south and west sides of the Columbia River corridor, the federally owned islands within the portion of the Columbia River included in the Monument, and the Hanford Sand Dune Field (Figure 4.3). FWS manages approximately 67,000 ha (166,000 ac) of Monument lands that are within ALE and the Wahluke Slope (Wahluke Unit and Saddle Mountain Unit) under permit from DOE. The Washington State Department of Fish and Wildlife manages approximately 324 ha (800 ac) of the Monument through a permit with DOE. The remainder of the Monument is managed by DOE. The June 9, 2000, proclamation does not affect the responsibilities and authority of DOE on Hanford Site lands nor does it affect DOE activities on lands not included within the Monument boundaries. In a separate memorandum to the Secretary of Energy, DOE was directed by the President to protect the natural values of the Hanford Site land not included within the Monument (Clinton 2000). DOE and FWS signed a Memorandum of Understanding on June 14, 2001, covering management responsibilities for the Monument. FWS issued a Notice of Intent to prepare a comprehensive conservation plan and associated EIS for the Monument in June 2002 (67 FR 40333).

DOE recently issued a policy directive covering DOE's use of institutional controls (DOE 2003d). DOE uses institutional controls for a variety of purposes including limiting access to land and facilities used for waste disposal operations. The policy directive provides that

- institutional controls will be used as essential components of a defense-in-depth strategy that uses multiple, relatively independent layers of safety to protect human health and the environment (including natural and cultural resources). This strategy employs a graded approach to attain a level of protection appropriate to the risks involved. DOE will use a graded approach to determine what types and levels of protective measures (e.g., physical, administrative, etc.) should be used.
- institutional controls will be implemented, along with other mitigating or preventive measures as necessary, to provide a reasonable expectation that if one control temporarily fails, other controls will be in place, or actions will be taken, to mitigate significant consequences of the failure. Institutional controls are not to be used to circumvent or substitute for permanent solutions when such solutions are reasonably achievable. Institutional controls will not be applied, or will be terminated, when DOE determines that such controls are not necessary or required.

The policy directive provides that DOE will maintain institutional controls as long as necessary to perform their intended protective purposes and will seek sufficient funding to maintain the controls.

Executive Order 11988 (42 FR 26951) directs federal agencies to establish procedures to ensure that the potential effects of flood hazards and floodplain management are considered for actions undertaken in a floodplain. The order further directs that floodplain impacts are to be avoided to the extent practicable. Executive Order 11990 (42 FR 26961) directs federal agencies to avoid, to the extent practicable, any short- and long-term adverse impacts on wetlands wherever there is a practicable alternative. DOE has issued regulations for compliance with Executive Orders 11988 and 11990 (10 CFR 1022).

6.3 Hanford Federal Facility Agreement and Consent Order

The Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement [TPA]) is an agreement between DOE, the U.S. Environmental Protection Agency (EPA), and Ecology (Ecology et al. 1989) for achieving compliance at the Hanford Site with RCRA (42 USC 6901 et seq.), CERCLA (42 USC 9601 et seq.), and the Washington State Hazardous Waste Management Act. The TPA 1) defines CERCLA, RCRA, and Washington State cleanup commitments and sets due dates for those commitments, 2) establishes responsibilities among the agencies, and 3) reflects the goal of achieving regulatory compliance and completing remediation activities with enforceable milestones.

RCRA was enacted in 1976 and was significantly amended by the Hazardous and Solid Waste Amendments of 1984. RCRA establishes requirements covering handlers of hazardous waste, including generators, transporters, and those who own or operate hazardous waste treatment, storage, and disposal facilities. RCRA also authorizes EPA to regulate underground tank storage of substances other than hazardous waste and the disposal of nonhazardous solid waste. RCRA does not apply to any activity or substance that is subject to the Atomic Energy Act except to the extent that such application or regulation is not inconsistent with the requirements of the Atomic Energy Act [42 USC 6905(a)]. CERCLA is a

federal statute designed to respond to releases or threatened releases (e.g., past disposal) of hazardous substances. CERCLA provides EPA the authority to clean up sites where disposal of hazardous substances has occurred. Section 120 of CERCLA (42 USC 9620) provides that federal agencies are subject to and shall comply with CERCLA to the same extent as nongovernmental entities. Section 105 of CERCLA (42 USC 9605) directs EPA to prepare the national contingency plan (NCP) containing procedures for cleanup response actions. The plan appears at 40 CFR 300. The National Priorities List (NPL) is part of the NCP. Four areas of the Hanford Site (100, 200, 300, and 1100) were listed on the NPL in November 1989. The 1100 Area was subsequently delisted. The TPA was entered into in 1989 in anticipation that the Hanford Site would be placed on the NPL. The Washington Hazardous Waste Management Act provides the statutory basis for the regulation of hazardous waste in Washington.

6.4 Hazardous Waste Management

Hazardous waste management (including the management of hazardous components of radioactive mixed waste) at the Hanford Site is regulated by Ecology and EPA pursuant to RCRA and the Washington State Hazardous Waste Management Act. Hazardous waste activities at Hanford are subject to regulation under RCRA by virtue of Section 6001 of RCRA.

Ecology's regulations are consistent with, and at least as stringent as, the EPA regulations implementing RCRA. Under RCRA, *hazardous wastes* are regulated. The waste categories defined in the Ecology regulations (WAC 170-303) are *dangerous wastes*, *acutely hazardous waste*, *extremely hazardous wastes*, and *special wastes*.

Hazardous waste treatment, storage, and/or disposal (TSD) facilities are regulated under Section 3004 of RCRA and are required to have a permit by Section 3005 of RCRA. The Hanford Site received interim status for its existing TSD units when the RCRA program became applicable to DOE activities. The existing units, as required, are being encompassed in a RCRA final status permit, which is being amended over time to include final status or closure conditions for these units. The Hanford Site RCRA permit is in two portions, one portion issued by EPA Region 10 and the other portion issued by Ecology. The EPA portion of the RCRA permit covers the Hazardous and Solid Waste Amendments portion of the RCRA permit (EPA 1994). The second portion of the Hanford Site RCRA permit covers the dangerous waste provisions and was most recently modified by Ecology in February 2001 (Ecology 2001a). The Ecology portion of the RCRA permit includes standard conditions, general facility conditions, and specific conditions for individual operating TSD units, TSD units undergoing corrective action, and TSD units undergoing closure. The RCRA permits, along with other environmental permits covering the Hanford Site, are described in the *Annual Hanford Site Environmental Permitting Status Report* (DOE 2002a).

For all alternatives, the non-radioactive hazardous components of mixed waste would be stored at the Hanford Site in accordance with applicable EPA and Ecology regulations. Treatment and disposal of radioactive mixed wastes would be conducted in accordance with applicable hazardous (or dangerous) waste standards and regulations at the Hanford Site or offsite locations.

Storage and disposal of waste containing polychlorinated biphenyls (PCBs) would meet the EPA requirements in 40 CFR 761. These regulations are issued under the Toxic Substances Control Act (TSCA; 15 USC 2601 et seq.). DOE, EPA, and Ecology signed a “Framework Agreement for Management of Polychlorinated Biphenyls in Hanford Tank Waste” in August 2000 (EPA 2000). DOE issued a *Toxic Substances Control Act Polychlorinated Biphenyls Hanford Site Users Guide* in 2001 (DOE 2001f).

6.5 Radioactive Waste Management

DOE facilities used for the management, storage, treatment, and disposal of radioactive waste and radioactive mixed waste are constructed and operated under the authority of the AEA. DOE directives are issued under the authority of Section 161(i)(3) of the AEA that permits DOE to govern activities authorized by the act to protect health and to minimize danger to life or property.

The principal DOE directive covering radioactive waste management is DOE Order 435.1, *Radioactive Waste Management* (DOE 2001d). This Order states that DOE radioactive waste shall be managed to accomplish the following:

1. Protect the public from exposure to radiation from radioactive materials. Requirements for public radiation protection are in DOE Order 5400.5, *Radiation Protection of the Public and the Environment* (DOE 1993b).
2. Protect the environment. Requirements for environmental protection are in DOE Order 450.1, *Environmental Protection Program* (DOE 2003a), and DOE Order 5400.5, *Radiation Protection of the Public and the Environment* (DOE 1993b).
3. Protect workers. Requirements for radiation protection of workers are in 10 CFR 835, “Occupational Radiation Protection.” Requirements for industrial safety are in DOE Order 440.1A, *Worker Protection Management for DOE Federal and Contractor Employees* (DOE 1998).
4. Comply with applicable federal, state, and local laws and regulations; applicable Executive Orders; and other DOE directives.
5. Meet the requirements in DOE Manual 435.1-1, *Radioactive Waste Management Manual* (DOE 2001e). DOE Manual 435.1-1 has specific requirements applicable to management of high-level waste in Chapter II, management of TRU waste in Chapter III, and management of low-level waste (LLW) and mixed LLW (MLLW) in Chapter IV. The DOE Manual provides that a site-specific radiological performance assessment is to be prepared by DOE and maintained for DOE LLW disposed of after September 26, 1988. The performance assessment is to include calculations for a 1,000-year period after closure of potential doses to representative future members of the public and potential releases from the facility to provide a reasonable expectation that the performance objectives identified in Chapter IV of the DOE Manual are not exceeded as a result of operation and closure of the facility. The point of compliance is to correspond to the point of highest projected dose

or concentration beyond a 100-meter buffer zone surrounding the disposed of waste. A larger or smaller buffer zone may be used if adequate justification is provided.

DOE recently issued DOE Order 450.1, *Environmental Protection Program* (DOE 2003a). The objective of the Order is to implement sound stewardship practices that are protective of the air, water, land, and other natural and cultural resources impacted by DOE operations and by which DOE meets or exceeds compliance with applicable environmental, public health, and resource protection laws, regulations, and DOE requirements. This objective will be accomplished by implementing Environmental Management Systems (EMSs) at DOE sites. An EMS is a continuing cycle of planning, implementing, evaluating, and improving processes and actions undertaken to achieve environmental goals. These EMSs will be part of Integrated Safety Management Systems established pursuant to DOE's *Safety Management System Policy* (DOE 1996b).

6.6 Radiological Safety Oversight

Specific requirements in 10 CFR 830 apply to DOE contractors, DOE personnel, and other persons conducting activities (including providing items and services) that affect, or may affect, the safety of DOE nuclear facilities. The regulations in 10 CFR 830 include requirements for quality assurance (10 CFR 830, Subpart A) and safety-basis requirements (10 CFR 830, Subpart B). The safety-basis requirements require the contractor responsible for a DOE nuclear facility to analyze the facility, the work to be performed, and the associated hazards; and to identify the conditions, the safe boundaries, and the hazard controls necessary to protect workers, the public, and the environment from adverse consequences. DOE relies on these analyses and hazard controls to operate facilities safely. The requirements for nuclear safety management in 10 CFR 830 apply to the activities being considered in this HSW EIS.

DOE has requirements for occupational radiation protection in 10 CFR 835 that establish radiation-protection standards, limits, and program requirements for protecting individuals from ionizing radiation resulting from the conduct of DOE activities. The requirements are applicable to general employees involved in activities being considered in the HSW EIS that have the potential to result in the occupational exposure of an individual to radiation or radioactive material. The 10 CFR 835 requirements are further discussed in Section 6.8.

The Price-Anderson Act, Section 170 of the AEA, provides a system of indemnification for legal liability resulting from a nuclear incident in connection with contractual activity for DOE. An extensive discussion of the Price-Anderson Act is included in the Yucca Mountain Final EIS (DOE 2002d).

Many DOE directives that affect radiological safety apply to constructing and operating the facilities addressed in the HSW EIS. Among the more significant directives are the following:

- DOE Order 420.1A, *Facility Safety* (DOE 2002c), establishes facility safety requirements related to nuclear safety design, criticality safety, fire protection, and the mitigation of phenomena related to natural hazards.

- DOE Order 425.1C, *Startup and Restart of Nuclear Facilities* (DOE 2003c), establishes DOE requirements for startup of new nuclear facilities and for the restart of existing nuclear facilities that have been shut down. The requirements specify a readiness review process that must demonstrate that it is safe to start (or restart) the applicable facility. The facility must be started (or restarted) only after documented independent reviews of readiness have been conducted and the approvals specified in the Order have been received.
- DOE Policy 441.1, *DOE Radiological Health and Safety Policy* (DOE 1996a), states that it is DOE policy to conduct its radiological operations in a manner that ensures the health and safety of all its employees, contractors, and the general public. The Policy states that in achieving this objective, DOE will ensure that radiation exposures to its workers and the public and releases of radioactivity to the environment are maintained below regulatory limits, and deliberate efforts are taken to further reduce exposures and releases to as low as reasonably achievable (ALARA). DOE is committed to implementing a radiological control program of the highest quality that consistently reflects this Policy.
- DOE Order 5400.5, *Radiation Protection of the Public and the Environment* (DOE 1993b), establishes standards and requirements for DOE operations for protection of members of the public and the environment against undue risk from radiation. It is DOE policy to implement legally applicable radiation-protection standards and to consider and adopt, as appropriate, recommendations by authoritative organizations, for example, the National Council on Radiation Protection and Measurements and the International Commission on Radiological Protection. It is also DOE policy to adopt and implement standards generally consistent with those of the U.S. Nuclear Regulatory Commission (NRC) for DOE facilities and activities not subject to NRC licensing authority.
- DOE Order 5480.20A, *Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities* (DOE 2001c), establishes the selection, qualification, and training requirements for DOE contractor personnel involved in the operation, maintenance, and technical support of DOE nuclear reactors and non-reactor nuclear facilities. DOE objectives under this Order are to ensure the development and implementation of contractor-administered training programs that provide consistent and effective training for personnel at DOE nuclear facilities. The Order contains minimum requirements that must be included in training and qualification programs.

6.7 Radiation Protection of the Public and the Environment

DOE standards for radiation protection of the public and the environment are set out in DOE Order 5400.5 (DOE 1993b). In addition to establishing a general limit for public dose from DOE activities, the Order requires DOE activities to be conducted in a manner that complies with regulations issued by other government agencies, as applicable. The Order also specifies standards for radiological exposures to native aquatic animals. Requirements of the DOE Order and other applicable standards are discussed in this section.

Activities associated with any alternative under consideration in this HSW EIS would be managed in accordance with Chapter II of DOE Order 5400.5, which provides that DOE activities shall be conducted so that the exposure of members of the public to radiation sources, as a consequence of all routine DOE activities, shall not cause an effective dose equivalent exceeding 1 mSv/yr (100 mrem/yr).

In addition, radioactive emissions from DOE facilities are subject to the EPA National Emission Standards for Hazardous Air Pollutants requirements at 40 CFR 61. In particular, Subpart A (General Provisions), Subpart H (National Emission Standards for Emissions of Radionuclides Other than Radon from Department of Energy Facilities), and Subpart Q (National Emission Standards for Radon Emissions from Department of Energy Facilities) are applicable to all alternatives. Air emissions resulting from the implementation of any alternative would comply with the EPA 0.1-mSv/yr (10-mrem/yr) standard at 40 CFR 61.92. For all new construction or modifications to existing facilities where the estimated effective dose equivalent could exceed 1 percent of the 0.1-mSv/yr (10-mrem/yr) standard, an application for approval of construction or modification would be submitted to the appropriate regional EPA office under the procedures at 40 CFR 61.07 [see 40 CFR 61.96(b)].

New sources of radioactive emissions at Hanford are also subject to the licensing requirements of the Washington State Department of Health (WDOH) (WAC 246-247). DOE holds a license (No. FF-01) issued by the WDOH covering airborne radioactive effluents from Hanford operations. The license is incorporated as Attachment 2 in the Hanford Air Operating Permit (Ecology 2001b). DOE would submit a Notice of Construction to the WDOH, as required by WAC 246-247-060, before constructing or modifying any facility associated with any alternative under consideration in this HSW EIS that has projected radioactive emissions or changes in radioactive emissions. All new construction and significant modifications of emission units would use best available radionuclide control technology [WAC 246-247-040(3), WAC 173-480-060]. Standards and/or permits and license requirements (conditions) for applicable radiation and non-radiation emission unit compliance are compiled in the Hanford Air Operating Permit (Ecology 2001b).

DOE would ensure that U.S. Department of Transportation (DOT) radiation-level limitations for packaging in 49 CFR 173.441 are met and that requirements in 49 CFR 173.443 related to radioactive contamination on the external surfaces of each package offered for shipment are met. Transportation issues are further discussed in Section 6.11.

Chapter II of DOE Order 5400.5 states that it is DOE policy to provide an equivalent level of protection for persons consuming water from a drinking water supply operated by DOE or its contractors that corresponds to the maximum contaminant levels set forth in 40 CFR 141.15 and 141.16. Specifically, DOE Order 5400.5 states that DOE drinking water systems shall not cause persons consuming the water to receive an effective dose equivalent (calculated based on Federal Guidance Reports 11 and 12 [Eckerman et al. 1988, 1993]) greater than 4 mrem (0.04 mSv) in a year. Combined radium-226 and radium-228 shall not exceed 5×10^{-9} $\mu\text{Ci/mL}$, and gross alpha activity (including radium-226, but excluding radon and uranium) shall not exceed 1.5×10^{-8} $\mu\text{Ci/mL}$.^(a) The maximum contaminant levels at

(a) In December 2000, EPA issued revised maximum contaminant levels for radionuclides to be effective in December 2003 (65 FR 76708). The new rule includes requirements for uranium.

40 CFR 141.15 and 141.16 are not directly applicable to groundwater and are used in this HSW EIS solely as a benchmark for water quality in the Hanford aquifer and the Columbia River for the long-term analysis.

DOE has a voluntary consensus technical standard that provides methods, models, and guidance within a graded approach that DOE personnel and contractors may use to characterize radiation doses to aquatic and terrestrial biota that are exposed to radioactive materials (DOE 2002b).

6.8 Occupational Safety and Occupational Radiation Exposure

Section 4(b)(1) of the Occupational Safety and Health Act of 1970 [29 USC 653(b)(1)] exempts DOE and its contractors from the occupational safety requirements of the U.S. Department of Labor Occupational Safety and Health Administration (OSHA). However, DOE Order 440.1A, *Worker Protection Management for DOE Federal and Contractor Employees* (DOE 1998), states that DOE will implement a written worker protection program that

- 1) provides a place of employment free from recognized hazards that are causing or are likely to cause death or serious physical harm to their employees, and 2) integrates all requirements contained in paragraphs 4a to 4l of DOE Order 440.1A; 29 CFR 1960, “Basic Program Elements for Federal Employee Occupational Safety and Health Programs and Related Matters”; and other related site-specific worker protection activities.

Relevant requirements in OSHA regulations and additional DOE-specified requirements are mandated by the DOE occupational, safety, and health program (DOE 1998).

DOE Order 5480.4, *Environmental, Safety, and Health Protection Standards* (DOE 1993a), requires that DOE and its contractors that are subject to this Order are to comply with the OSHA Occupational Safety and Health Standards at 29 CFR 1910.

The DOE radiation protection standards, limits, and program requirements for protecting occupational workers and visitors from ionizing radiation resulting from the conduct of DOE activities are in 10 CFR 835. All activities associated with any alternative would be conducted consistent with 10 CFR 835 requirements. The annual total effective dose equivalent (TEDE) limit for general employees is 0.05 Sv (5 rem) [10 CFR 835.202(a)(1)]. DOE policy is to maintain radiation exposure in controlled areas ALARA through facility and equipment design and administrative controls (10 CFR 835.1001). In addition, exposure of members of the public authorized to enter the controlled area where there are activities associated with implementing any alternative would not exceed 1 mSv (100 mrem) TEDE in a year (10 CFR 835.208). DOE Order 5480.4 specifies a number of American National Standards Institute standards applicable to radiation protection that DOE and its contractors must meet.

6.9 Non-Radioactive Air Emissions

Emissions of criteria or toxic pollutants from new sources would most likely be in small quantities under any alternative evaluated in the HSW EIS. Any such emissions would not be expected to require prevention of significant deterioration (PSD) permitting under 40 CFR 52.21 or WAC 173-400-141 because Hanford is within an area that is in attainment with or is unclassifiable for all national ambient air quality standards (40 CFR 81.348). New source review applicability for non-PSD criteria or toxic air permitting would be evaluated on a case-by-case basis under WAC 173-400-110 and WAC 173-460. All emissions of criteria or toxic pollutants would comply with applicable standards for air sources, as specified under the general air regulation (WAC 173-400). The EPA general conformity rule (40 CFR 93, Subpart B) requires that federal agencies prepare a written conformity analysis and determination covering compliance with an applicable state implementation plan for proposed activities if the total of direct and indirect emissions of a non-attainment or maintenance criteria pollutant caused by the activity would exceed the threshold emission levels shown at 40 CFR 93.153(b). General conformity is discussed in Section 5.2 of the HSW EIS. As noted earlier, the Washington State Clean Air Act authorizes Ecology and local air pollution control authorities to implement programs consistent with the Federal Clean Air Act.

6.10 State Waste Discharge Requirements

Ecology regulates industrial liquid waste discharges under the WAC 173-216 and WAC 173-218 permit programs. Ecology has issued the 200 Area Effluent Treatment Facility (ETF) Discharge Permit ST-4500 and the 200 Area Treated Effluent Disposal Facility (TEDF) Discharge Permit ST-4502 (DOE 2002a). Sanitary sewage discharges are approved under the onsite sewage system program (WAC 246-272).

6.11 Transportation Requirements

The transportation of all radioactive and other hazardous materials associated with any alternative selected for implementation would comply with applicable DOE directives and the regulations of EPA, DOT, and Ecology. Applicable DOE directives include DOE Order 460.1B, *Packaging and Transportation Safety* (DOE 2003b), DOE Order 460.2, *Departmental Materials Transportation and Packaging Management* (DOE 1995), and DOE Manual 460.2-1, *Radioactive Material Transportation Practices Manual* (DOE 2002e).

DOE Order 460.2 states that DOE operations shall be conducted in compliance with all applicable international, federal, state, local, and tribal laws, rules, and regulations governing materials transportation that are consistent with federal regulations, unless exemptions or alternatives are approved in accordance with DOE Order 460.1B (DOE 2003b). DOE Order 460.2 also states that it is DOE policy that shipments will comply with the DOT 49 CFR 106-180 requirements, except those that infringe upon maintenance of classified information.

DOE Order 460.1B establishes safety requirements for the proper packaging and transportation of DOE offsite shipments and onsite transfers of hazardous materials and for modal transport. Offsite is defined in the Order as any area within or outside a DOE site to which the public has free and uncontrolled access; onsite is defined as any area within the boundaries of a DOE site or facility to which access is controlled. The Order includes requirements for offsite packaging and transportation safety, special requirements for offsite shipment of radioactive material packagings, and quality assurance requirements. Offsite shipments of hazardous materials are to comply with applicable Department of Transportation (DOT) regulations. Onsite shipments of hazardous materials are to comply with DOT regulations or approved local requirements that provide equivalent safety. DOE Order 460.1B also requires an appropriate training program for persons involved in the packaging and transportation of DOE hazardous materials.

The Hazardous Materials Transportation Act (HMTA) (49 USC 5101 et seq.), as amended by the Hazardous Materials Transportation Uniform Safety Act of 1990, is the major Federal transportation-related statute affecting DOE. HMTA is implemented by regulations issued by the DOT Research and Special Programs Administration, Federal Highway Administration, Federal Railroad Administration, Federal Aviation Administration, and the U.S. Coast Guard.

Under the HMTA, DOT has requirements for marking, labeling, placarding, providing emergency response information, and training of hazardous material transport personnel at 49 CFR 172. Specific packaging requirements for radioactive materials are in 49 CFR 173, Subpart I. These requirements invoke the NRC packaging requirements for radioactive material as set forth in 10 CFR 71. DOT regulations for truck transportation of radioactive and other hazardous materials are in 49 CFR 172, 173, 177, 178, and 397. DOT regulations for rail transportation of radioactive and other hazardous materials are in 49 CFR 172, 173, 174, and 178. The Ecology regulations applicable to transportation of hazardous waste in Washington State are in WAC 173-303-240 through 270.

6.12 Cultural Resources

The DOE policy on management of cultural resources (DOE 2001a) provides that

DOE will uphold [the National Historic Preservation Act, the Archaeological Resources Protection Act, and the Native American Graves Protection and Repatriation Act] by preserving, protecting, and perpetuating cultural resources for future generations in a spirit of stewardship to the extent feasible given the agency's mission and mandates. To do this, DOE will implement management accountability for compliance with Federal statutes, Executive Orders, treaties, DOE Orders, and implementation guidance. The Department also ensures that DOE contractors are obligated to implement DOE programs and projects in a manner that is consistent with this Policy and that reflects this commitment in site management contracts.

The background statement in *Management of Cultural Resources at Department of Energy Facilities* (DOE 2001b) further states that

DOE recognizes the cultural and scientific value of the resources that may exist on the properties under its management or over which it has direct or indirect control. Therefore, DOE has implemented a program to protect these resources and ensure that all DOE facilities and programs comply with all existing cultural resource Executive Orders, laws, and regulations. Thus, DOE is able to preserve, protect, and perpetuate cultural resources for future generations.

DOE (2001b) defines cultural resources to include “historic properties” as defined in the National Historic Preservation Act, “archaeological resources” as defined in the Archaeological Resources Protection Act of 1979, and “cultural items” as defined in the Native American Graves Protection and Repatriation Act (see Section 6.13).

The National Historic Preservation Act authorizes the Secretary of the Interior to maintain a National Register of Historic Places [16 USC 470a(a)(1)]. Federal agencies are to consider the effect of their actions on properties included in or eligible for inclusion in the Register and afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on such actions (16 USC 470f).

The Archaeological Resources Protection Act of 1979 prohibits the excavation of material remains of past human life on public or Indian lands that have archaeological interest and are at least 100 years old without a permit from the appropriate federal land manager or an exemption (16 USC 470aa, 470bb, 470ee).

The Native American Graves Protection and Repatriation Act of 1990 prohibits the intentional excavation or removal of human remains or cultural items without a written permit, and prescribes protective measures and repatriative actions to be taken in the event that human remains or cultural items are discovered inadvertently (25 USC 3001 et seq.).

DOE and Hanford Site contractor compliance with cultural resources compliance legislation is discussed in Section 2.2.14 of the *Hanford Site Environmental Report for Calendar Year 2001* (Poston et al. 2002).

6.13 Treaties, Statutes, and Policies Relating to Native Americans

DOE’s relationship with American Indians is based on treaties, statutes, Executive Orders, and DOE policy statements. Representatives of the United States negotiated treaties with leaders of various Columbia Plateau American Tribes and Bands in June 1855 at Camp Stevens in the Walla Walla Valley. The negotiations resulted in three treaties, one with the 14 tribes and bands of the group that would become the Confederated Tribes and Bands of the Yakama Nation, one with the three tribes that would

become the Confederated Tribes of the Umatilla Indian Reservation, and one with the Nez Perce Tribe. The U.S. Senate ratified the treaties in 1859. The negotiated treaties are as follows:

1. Treaty with the Walla Walla, Cayuse, etc. (June 9, 1855; 12 Stats. 945)
2. Treaty with the Yakama (June 9, 1855; 12 Stats. 951)
3. Treaty with the Nez Perce (June 11, 1855; 12 Stats. 957).^(a)

The Confederated Tribes and Bands of the Yakama Nation, the Confederated Tribes of the Umatilla Indian Reservation, and the Nez Perce Tribe are federally recognized tribes that are eligible for funding and services from the Bureau of Indian Affairs by virtue of their status as Indian tribes (67 FR 46328).

The terms of the three preceding treaties are similar. Each of the three tribal organizations agreed to cede large blocks of land to the United States. The Hanford Site is within the ceded lands of the Yakama Nation and the Confederated Tribes of the Umatilla Indian Reservation. The treaties reserved to the Tribes certain lands for their exclusive use (the three reservations). The treaties also secured to the Tribes certain rights and privileges to continue traditional activities outside the reservations. These included 1) the right to fish at usual and accustomed places in common with other citizens of the United States, and 2) the privileges of hunting, gathering roots and berries, and pasturing horses and cattle on open and unclaimed lands. DOE believes that none of the activities involved in the HSW EIS would take place on open and unclaimed land.

The *U.S. Department of Energy American Indian and Alaska Native Tribal Government Policy* (DOE 2000) states, in part, that DOE

- recognizes the federal trust relationship with American Indians and Alaska Native Nations and will fulfill its trust responsibilities to them
- recognizes and commits to a government-to-government relationship and will institute appropriate protocols and procedures for program and policy implementation
- compliance with applicable federal cultural resource protection and other laws and Executive Orders will assist in preservation and protection of historic and cultural sites and traditional religious practices.

The American Indian Religious Freedom Act (42 USC 1996) establishes that U.S. policy is to protect and preserve for American Indians their inherent rights of freedom to believe, express, and exercise their traditional religions, including access to sites, use and possession of sacred objects, and the freedom to worship through ceremonies and traditional rites.

(a) The three treaties, as well as additional treaties, are included in Appendix A of the Hanford Comprehensive Land-Use Plan EIS (DOE 1999).

The Native American Graves Protection and Repatriation Act establishes the right of lineal descendants, Indian Tribes, and Native Hawaiian organizations to certain Native American human remains, funerary objects, sacred objects, or objects of cultural patrimony discovered on federal lands after November 16, 1990 (25 USC 3001 et seq.). When discovered during an activity on federal lands, the activity is to cease and appropriate tribal governments are to be notified. Work on the activity may resume, if resumption of the activity is otherwise lawful, 30 days after the receipt of certification that tribal governments have received the notice.

Executive Order 13007, “Indian Sacred Sites,” (61 FR 26771) directs federal agencies, to the extent practicable, permitted by law, and not clearly inconsistent with essential agency functions, to 1) accommodate access to and ceremonial use of American Indian sacred sites by their religious practitioners, and 2) avoid adversely affecting the physical integrity of such sacred sites. Where appropriate, agencies are to maintain the confidentiality of sacred sites.

The DOE Richland Operations Office (DOE-RL) interacts and consults regularly and directly with the three federally recognized tribes affected by Hanford Site operations, that is, the Nez Perce Tribe, the Confederated Tribes of the Umatilla Reservation, and the Yakama Nation. In addition, the Wanapum, who still live adjacent to the Hanford Site, are a non-federally recognized tribe that has strong cultural ties to the Site. The Hanford area was also used by groups whose descendants are now enrolled members of the Confederated Tribes of the Colville Reservation. The Wanapum and the Confederated Tribes of the Colville Reservation are also consulted on cultural resource issues in accordance with DOE policy and relevant legislation.

6.14 Environmental Justice and Protection of Children

Section 2-2 of Executive Order 12898, “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,” (59 FR 7629) states that

Each Federal agency shall conduct its programs, policies, and activities that substantially affect human health or the environment, in a manner that ensures that such programs, policies, and activities do not have the effect of excluding persons (including populations) from participation in, denying persons (including populations) the benefits of, or subjecting persons (including populations) to discrimination under, such programs, policies, and activities, because of their race, color, or national origin.

The CEQ has issued guidance for federal agencies to use in implementing Executive Order 12898 in conjunction with NEPA (CEQ 1997). DOE has also issued an information brief for DOE staff covering Executive Order 12898 (DOE 1997).

Section 1 of Executive Order 13045, “Protection of Children from Environmental Health Risks and Safety Risks,” (62 FR 19885) requires federal agencies to

- make it a high priority to identify and assess environmental health risks and safety risks that may disproportionately affect children

- ensure that their policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks.

6.15 Chemical Management

Chemical management would also be conducted according to DOE Order 5480.4, *Environmental Protection, Safety, and Health Protection Standards* (DOE 1993a), which requires DOE and its contractors to comply with National Fire Protection Association Codes and Standards and the Occupational Safety and Health Standards in 29 CFR 1910. The Hanford strategy for chemical management is described in Section 2.2.3 of the *Hanford Site Environmental Report for Calendar Year 2001* (Poston et al. 2002).

6.16 Emergency Planning and Community Right-to-Know

Part 5 of Executive Order 13148, “Greening the Government Through Leadership in Environmental Management,” (65 FR 24595) requires that federal executive branch agencies comply with the requirements for toxic chemical release reporting in Section 313 of the Emergency Planning and Community Right-to-Know Act (42 USC 11001). DOE’s compliance with the Emergency Planning and Community Right-to-Know Act at the Hanford Site is discussed in Section 2.2.5 of the *Hanford Site Environmental Report for Calendar Year 2001* (Poston et al. 2002). Compliance activities would be supplemented with any additional notification, planning, or reporting requirements that may arise.

6.17 Pollution Prevention

Part 5 of Executive Order 13148, “Greening the Government Through Leadership in Environmental Management,” (65 FR 24595) requires that federal executive branch agencies comply with Section 6607 of the Pollution Prevention Act (42 USC 13101 et seq.). Section 6607 requires that owners of a facility required to file an annual toxic chemical release form under Section 313 of the Emergency Planning and Community Right-to-Know Act (42 USC 11001) for any toxic chemical shall include with each such annual filing a toxic-chemical source reduction and recycling report for the preceding calendar year. DOE’s compliance with the Pollution Prevention Act at the Hanford Site is discussed in Section 2.2.5 of the *Hanford Site Environmental Report for Calendar Year 2001* (Poston et al. 2002). If implementation of any alternative considered in this HSW EIS were to trigger reporting under Section 313 of the Emergency Planning and Community Right-to-Know Act, DOE would comply with the reporting requirements and the requirement for a toxic-chemical source reduction and recycling report.

6.18 Endangered Species

Section 7 of the Endangered Species Act (16 USC 1536) requires that Federal agencies 1) use their authority in furtherance of the purposes of the act by carrying out programs for the conservation of listed endangered and threatened species, and 2) consult with appropriate Federal agencies to ensure that any action carried out by DOE is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of critical habitat for such species.

Additional information is provided in Sections 4.6.4 and 5.5.12 of this HSW EIS and in Section 2.2.12 of the *Hanford Site Environmental Report 2001* (Poston et al. 2002).

6.19 Permit Requirements

The CEQ regulations implementing NEPA [40 CFR 1502.25(b)] require that an EIS list all federal permits, licenses, and other entitlements that must be obtained to implement the alternatives.

DOE would obtain appropriate required permits for any new or modified facility. The exact nature and type of permits that would be needed cannot be known until the actual new or modified facilities are selected and defined with more precision. As an example, however, a new waste processing facility could require a variety of approvals, permits, or permit modifications, including:

- modification to the dangerous waste portion of the Hanford RCRA permit
- submission of a notice of construction to the WDOH
- modification of the Hanford Air Operating Permit
- construction approval by EPA under 40 CFR 61
- approval from EPA under TSCA and the regulations in 40 CFR 761(d) if waste containing PCBs is treated or disposed of at the facility
- approval from WDOH for onsite sewage disposal under WAC 246-272.

As another example, permits might be required for operating pulse driers to process leachate.

A list of permits and approvals that may be required to implement the disposal alternatives is shown in Table 6.1. In some cases, specific operating requirements or pollution control equipment would be required to ensure compliance with environmental quality regulations. New trenches could require a variety of approvals, permits, or permit modifications, including a modification to the dangerous waste portion of the Hanford RCRA permit. The disposal facility could be subject to the landfill design

Table 6.1. Potential Permits and Approvals Needed for Storage and Disposal

Activity and Waste Type	Regulatory Action Required	Regulation or Directive	Regulatory Agency
Air emissions	Controls for new sources of toxic and hazardous air pollutants	WAC 173-460, 40 CFR 61	Ecology and EPA
Air emissions	Notice of Construction, licensing, and possible sitewide air operating permit modification	WAC 173-400, WAC 246-247	WDOH and Ecology
Dangerous (including mixed) waste generation, storage, treatment, and disposal	Dangerous waste permit, RCRA permit	WAC 173-303, 40 CFR 260-280	Ecology and EPA
Radiological	Disposal authorization statement	DOE Manual 435.1-1	DOE

requirements as specified in “Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities” (40 CFR 264, Subpart N), and WAC 173-303-665. The primary design features mandated by these regulations are the leachate collection system and the trench liner system (double liners, primary, and secondary).

New LLW trenches at Hanford would be designed, sited, operated, and closed in accordance with the DOE *Radioactive Waste Management Manual* (DOE 2001e). Chapter IV.P of the DOE Manual contains radiological performance objectives for DOE LLW disposal facilities. Chapter IV.P also requires preparation and periodic updating of 1) a performance assessment to demonstrate compliance with the performance objectives, and 2) a composite analysis, which considers all sources of radioactive material that may be left at the DOE site and may interact with the LLW disposal facility. The point of compliance in the performance assessment corresponds to the point of highest projected dose or concentration beyond a 100-meter buffer zone surrounding the disposed of waste. A larger or smaller buffer zone may be used if adequate justification is provided. Chapter IV.M of the DOE Manual contains design requirements and general design criteria that would be applied to a new LLW disposal facility.

Information developed for the HSW EIS plus site-specific design information developed in the future would be used in preparing the performance assessment and composite analysis for a potential new LLW disposal facility. Chapter IV.R of the DOE Manual specifies that DOE LLW disposal facilities will have a monitoring plan designed to measure and evaluate 1) releases, 2) migration of radionuclides, 3) disposal unit subsidence, and 4) changes in disposal facility and disposal site parameters which may affect long-term performance. LLW disposal facilities at DOE sites must be approved in advance by the DOE Headquarters Office of Environmental Management.

New MLLW trenches would be designed, sited, operated, and closed in accordance with the DOE *Radioactive Waste Management Manual* (DOE 2001e) and with applicable Ecology dangerous waste regulations and EPA RCRA regulations. A permit from Ecology would be needed (WAC 173-303-800). A permit would only be issued if the siting criteria in WAC 173-303-282, the performance standards in WAC 173-303-283, and the requirements for landfills in WAC 173-303-665 are satisfied. Construction on a new MLLW trench would not begin until authorization is issued by Ecology. The Ecology regulations contain detailed requirements for groundwater monitoring and, as needed, corrective actions (WAC 173-303-645). The point of compliance with groundwater protection standards is specified in the final permit [WAC 173-303-645(6)]. Permits for a land disposal facility are reviewed by Ecology five years after the date of permit issuance and modified as necessary, as provided in WAC 173-303-830(3) [see WAC 173-303-806(11)(d)].

The principal existing Hanford facilities that would be involved in implementing the alternatives in the HSW EIS are the Central Waste Complex, 200 Area Effluent Treatment Facility (ETF), Liquid Effluent Retention Facility, LLW Trenches, MLLW Trenches, T Plant Complex, and the Waste Receiving and Processing Facility. Table 6.2 indicates whether operation of each of these facilities is covered in the existing dangerous waste portion of the Hanford RCRA permit (Ecology 2001a) for RCRA interim status or the Hanford Air Operating Permit (Ecology 2001b). In all cases where units are covered in the dangerous waste portion of the Hanford RCRA permit, the coverage is in Part III of the permit that contains unit-specific conditions for final status operations.

Table 6.2. Coverage of Hanford Solid Waste Management Units in Existing Permits

Unit	Dangerous Waste Portion of Hanford RCRA Permit/Interim Status ^(a)	Hanford Air Operating Permit
Central Waste Complex	Yes	Yes
200 Area ETF	Yes	Yes
Liquid Effluent Retention Facility	Yes	Yes
LLW Trenches	Extent of applicability under discussion	Yes
MLLW Trenches	Yes	Yes
T Plant Complex	Yes	Yes
Waste Receiving and Processing Facility	Yes	Yes
(a) Interim status currently, final status in process.		

6.20 References

10 CFR 71. “Packaging and Transportation of Radioactive Material.” Code of Federal Regulations. Online at: http://www.access.gpo.gov/nara/cfr/waisidx_01/10cfr71_01.html

10 CFR 830. “Nuclear Safety Management.” Code of Federal Regulations. Online at: http://www.access.gpo.gov/nara/cfr/waisidx_02/10cfr830_02.html

10 CFR 835. “Occupational Radiation Protection.” Code of Federal Regulations. Online at: http://www.access.gpo.gov/nara/cfr/waisidx_02/10cfr835_02.html

10 CFR 1021. “DOE National Environmental Policy Act Implementing Procedures.” Code of Federal Regulations. Online at: http://www.access.gpo.gov/nara/cfr/waisidx_02/10cfr1021_02.html

10 CFR 1022. “Compliance with Floodplain/Wetlands Environmental Review Requirements.” Code of Federal Regulations. Online at: <http://www.access.gpo.gov/nara/cfr/index.html>

29 CFR 1910. “Occupational Safety and Health Standards.” Code of Federal Regulations. Online at: http://www.access.gpo.gov/nara/cfr/waisidx_01/29cfr1910_01.html

29 CFR 1960. “Basic Program Elements for Federal Employee Occupational Safety and Health Programs and Related Matters.” Code of Federal Regulations. Online at: http://www.access.gpo.gov/nara/cfr/waisidx_01/29cfr1960_01.html

40 CFR 50-99. “Clean Air Act/Air Programs.” Code of Federal Regulations. Online at: <http://www.gpoaccess.gov/cfr/index.html>

40 CFR 52. “Approval and Promulgation of Implementation Plans.” Code of Federal Regulations. Online at: http://www.access.gpo.gov/nara/cfr/waisidx_02/40cfrv3_02.html

40 CFR 61. “National Emission Standards for Hazardous Air Pollutants.” Code of Federal Regulations. Online at: http://www.access.gpo.gov/nara/cfr/waisidx_02/40cfr61_02.html

40 CFR 63. “National Emissions Standards for Hazardous Air Pollutants for Source Categories.” Code of Federal Regulations. Online at: http://www.access.gpo.gov/nara/cfr/waisidx_02/40cfrv9_02.html

40 CFR 81. “Designation of Areas for Air Quality Planning Purposes.” Code of Federal Regulations. Online at: http://www.access.gpo.gov/nara/cfr/waisidx_01/40cfr81_01.html

40 CFR 93. “Determining Conformity of Federal Actions to State and Federal Implementation Plans.” Code of Federal Regulations. Online at: http://www.access.gpo.gov/nara/cfr/waisidx_01/40cfr93_01.html

40 CFR 141. “National Primary Drinking Water Regulations.” Code of Federal Regulations. Online at: http://www.access.gpo.gov/nara/cfr/waisidx_01/40cfr141_01.html

40 CFR 260-282. “Resource Conservation and Recovery Act Regulations.” Code of Federal Regulations. Online at: <http://www.gpoaccess.gov/cfr/index.html>

40 CFR 300. “National Oil and Hazardous Substances Pollution Contingency Plan.” Code of Federal Regulations. Online at: http://www.access.gpo.gov/nara/cfr/waisidx_02/40cfr300_02.html

40 CFR 761. “Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions.” Code of Federal Regulations. Online at: http://www.access.gpo.gov/nara/cfr/waisidx_01/40cfr761_01.html

40 CFR 1500-1508. “Council on Environmental Quality Regulations for Implementing the Procedural Provision of the National Environmental Policy Act.” Code of Federal Regulations. Online at: http://www.access.gpo.gov/nara/cfr/waisidx_01/40cfrv28_01.html

49 CFR 106-180. “Subtitle B—Other Regulations Relating to Transportation. Chapter I. Research and Special Programs Administration.” Code of Federal Regulations. Online at: http://www.access.gpo.gov/nara/cfr/waisidx_02/49cfrv2_02.html

49 CFR 397. “Transportation of Hazardous Materials: Driving and Parking Rules.” Code of Federal Regulations. Online at: <http://www.access.gpo.gov/nara/cfr/index.html>

42 FR 26951. “Executive Order 11988. Floodplain Management.” *Federal Register* (May 24, 1977).

42 FR 26961. “Executive Order 11990. Protection of Wetlands.” *Federal Register* (May 24, 1977).

51 FR 3782. “Washington; Final Authorization of State Hazardous Waste Management Program.” *Federal Register* (January 30, 1986).

52 FR 35556. “Final Authorization of State Hazardous Waste Management Program; Washington.” *Federal Register* (September 22, 1987).

55 FR 33695. “Washington; Final Authorization of State Hazardous Waste Management Program.” *Federal Register* (August 17, 1990).

59 FR 55322. “Washington; Final Authorization of State Hazardous Waste Management Program Revisions.” *Federal Register* (November 4, 1994). Online at: <http://www.gpoaccess.gov/fr/index.html>

59 FR 7629. “Executive Order 12898 of February 11, 1994: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations.” *Federal Register* (February 16, 1994). Online at: <http://www.gpoaccess.gov/fr/index.html>

61 FR 7736. “Washington; Final Authorization of State Hazardous Waste Management Program Revisions.” *Federal Register* (February 29, 1996). Online at: <http://www.gpoaccess.gov/fr/index.html>

61 FR 26771. “Executive Order 13007 of May 24, 1996: Indian Sacred Sites.” *Federal Register* (May 29, 1996). Online at: <http://www.gpoaccess.gov/fr/index.html>

62 FR 19885. “Executive Order 13045 of April 21, 1997: Protection of Children from Environmental Health Risks and Safety Risks.” *Federal Register* (April 23, 1997). Online at: <http://www.gpoaccess.gov/fr/index.html>

63 FR 50531. “Washington; Final Authorization of State Hazardous Waste Management Program Revision.” *Federal Register* (September 22, 1998). Online at: <http://www.gpoaccess.gov/fr/index.html>

64 FR 55142. “Washington; Final Authorization of State Hazardous Waste Management Program Revision.” *Federal Register* (October 12, 1999). Online at: <http://www.gpoaccess.gov/fr/index.html>

64 FR 61615. “Record of Decision: Hanford Comprehensive Land-Use Plan Environmental Impact Statement (HCP EIS).” *Federal Register* (November 12, 1999). Online at: <http://www.gpoaccess.gov/fr/index.html>

65 FR 24595. “Executive Order 13148 of April 21, 2000. Greening the Government Through Leadership in Environmental Management.” *Federal Register* (April 26, 2000). Online at: <http://www.gpoaccess.gov/fr/index.html>

65 FR 37253. “Establishment of the Hanford Reach National Monument.” Proclamation 7319 of June 9, 2000 by the President of the United States of America. *Federal Register* (June 9, 2000). Online at: <http://www.gpoaccess.gov/fr/index.html>

65 FR 76708. "National Primary Drinking Water Regulations; Radionuclides; Final Rule." *Federal Register* (December 7, 2000). Online at: <http://www.gpoaccess.gov/fr/index.html>

67 FR 17636. "Washington; Final Authorization of State Hazardous Waste Management Program Revision." *Federal Register* (April 11, 2002). Online at: <http://www.gpoaccess.gov/fr/index.html>

67 FR 40333. "Notice of Intent to Prepare a Comprehensive Conservation Plan and Associated Environmental Impact Statement for Hanford Reach National Monument/Saddle Mountain National Wildlife Refuge." *Federal Register* (June 12, 2002). Online at: <http://www.gpoaccess.gov/fr/index.html>

67 FR 46328. "Indian Entities Recognized and Eligible to Receive Services from the United States Bureau of Indian Affairs." *Federal Register* (July 12, 2002). Online at: <http://www.gpoaccess.gov/fr/index.html>

15 USC 2601 et seq. Toxic Substances Control Act (TSCA). Online at: <http://www4.law.cornell.edu>

16 USC 431 et seq. Antiquities Act of 1906 (American Antiquities Preservation Act). Online at: <http://www4.law.cornell.edu>

16 USC 469 et seq. Archaeological and Historic Preservation Act of 1979. Online at: <http://www4.law.cornell.edu>

16 USC 470aa et seq. Archaeological Resources Protection Act of 1979. Online at: <http://www4.law.cornell.edu>

16 USC 470 et seq. National Historic Preservation Act (NHPA) of 1966. Online at: <http://www4.law.cornell.edu>

16 USC 661 et seq. Fish and Wildlife Coordination Act. Online at: <http://www4.law.cornell.edu>

16 USC 668 et seq. Bald and Golden Eagles. Online at: <http://www4.law.cornell.edu>

16 USC 703 et seq. Migratory Bird Treaty Act. Online at: <http://www4.law.cornell.edu>

16 USC 1531 et seq. Endangered Species Act. Online at: <http://www4.law.cornell.edu>

25 USC 3001 et seq. Native American Graves Protection and Repatriation Act. Online at: <http://www4.law.cornell.edu>

29 USC 651, et seq. Occupational Safety and Health Act of 1970. Online at: <http://www4.law.cornell.edu>

33 USC 1251 et seq. Clean Water Act. Online at: <http://www4.law.cornell.edu>

| 42 USC 300f et seq. Safe Drinking Water Act. Online at: <http://www4.law.cornell.edu>

42 USC 1996. American Indian Religious Freedom Act. Online at: <http://www4.law.cornell.edu>

42 USC 2011 et seq. Atomic Energy Act (AEA) of 1954. Online at: <http://www4.law.cornell.edu>

42 USC 4321 et seq. National Environmental Policy Act (NEPA) of 1969, as amended. Online at: <http://www4.law.cornell.edu>

42 USC 6901 et seq. Resource Conservation and Recovery Act (RCRA) of 1976. Online at: <http://www4.law.cornell.edu>

42 USC 7401 et seq. Clean Air Act. Online at: <http://www4.law.cornell.edu>

42 USC 9601 et seq. Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980. Online at: <http://www4.law.cornell.edu>

42 USC 11001 et seq. Emergency Planning and Community Right-to-Know Act. Online at: <http://www4.law.cornell.edu>

42 USC 13101 et seq. Pollution Prevention Act of 1990. Online at: <http://www4.law.cornell.edu>

49 USC 5101 et seq. Hazardous Materials Transportation Act of 1994. Online at: <http://www4.law.cornell.edu>

CEQ. 1997. *Environmental Justice: Guidance Under the National Environmental Policy Act*. Council on Environmental Quality, Executive Office of the President, Washington, D.C. Online at: <http://ceq.eh.doe.gov/nepa/regs/ej/justice.pdf>

Clinton, W. J. 2000. "Memorandum from President William Clinton to the Secretary of Energy." June 9, 2000. Online at: <http://clinton6.nara.gov>

DOE. 1993a. *Environmental, Safety, and Health Protection Standards*. DOE Order 5480.4, U.S. Department of Energy, Washington, D.C. Online at: <http://www.directives.doe.gov>

DOE. 1993b. *Radiation Protection of the Public and the Environment*. DOE Order 5400.5, U.S. Department of Energy, Washington, D.C. Online at: <http://www.directives.doe.gov>

DOE. 1995. *Departmental Materials Transportation and Packaging Management*. DOE Order 460.2, U.S. Department of Energy, Washington, D.C. Online at: <http://www.directives.doe.gov>

DOE. 1996a. *DOE Radiological Health and Safety Policy*. DOE Policy 441.1, U.S. Department of Energy, Washington, D.C. Online at: <http://www.directives.doe.gov>

DOE. 1996b. *Safety Management System Policy*. DOE Policy 450.4, U.S. Department of Energy, Washington, D.C. Online at: <http://www.directives.doe.gov>

DOE. 1997. "Executive Order 12898, Federal Actions to Address Environmental Justice in Minority and Low-Income Populations." Environmental Justice Information Brief, EH-411-97/0001, U.S. Department of Energy, Washington, D.C. Online at: <http://homer.ornl.gov>

DOE. 1998. *Worker Protection Management for DOE Federal and Contractor Employees*. DOE Order 440.1A, U.S. Department of Energy, Washington, D.C. Online at: <http://www.directives.doe.gov>

DOE. 1999. *Final Hanford Comprehensive Land-Use Plan Environmental Impact Statement and Comprehensive Land-Use Plan*. DOE/EIS-0222-F, U.S. Department of Energy, Washington, D.C. Online at: <http://www.hanford.gov/eis/hraeis/maintoc.htm>

DOE. 2000. *U.S. Department of Energy American Indian and Alaska Native Tribal Government Policy*. U.S. Department of Energy, Washington, D.C. Online at: <http://www.ci.doe.gov/indianbk.pdf>

DOE. 2001a. *Department of Energy Management of Cultural Resources*. DOE Policy 141.1, U.S. Department of Energy, Washington, D.C. Online at: <http://www.directives.doe.gov>

DOE. 2001b. *Management of Cultural Resources at Department of Energy Facilities*. DOE/EH-412/0005r (revised July 2001), U.S. Department of Energy, Washington, D.C. Online at: <http://homer.ornl.gov>

DOE. 2001c. *Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities*. DOE Order 5480.20A, U.S. Department of Energy, Washington, D.C. Online at: <http://www.directives.doe.gov>

DOE. 2001d. *Radioactive Waste Management*. DOE Order 435.1 Change 1, U.S. Department of Energy, Washington, D.C. Online at: <http://www.directives.doe.gov>

DOE. 2001e. *Radioactive Waste Management Manual*. DOE Manual 435.1-1, U.S. Department of Energy, Washington, D.C. Online at: <http://www.directives.doe.gov>

DOE. 2001f. *Toxic Substances Control Act Polychlorinated Biphenyls Hanford Site Users Guide*. DOE/RL-2001-50, Rev. 0, U.S. Department of Energy, Richland, Operations Office, Richland, Washington.

DOE. 2002a. *Annual Hanford Site Environmental Permitting Status Report*. DOE/RL-96-63, Rev. 6, U.S. Department of Energy, Richland, Washington.

DOE. 2002b. "DOE Standard: A Graded Approach for Evaluating Radiation Doses to Aquatic and Terrestrial Biota." DOE-STD-1153-2002, U.S. Department of Energy, Washington, D.C. Online at: <http://tis.eh.doe.gov/techstds>

DOE. 2002c. *Facility Safety*. DOE Order 420.1A, U.S. Department of Energy, Washington, D.C.
Online at: <http://www.directives.doe.gov>

DOE. 2002d. *Final Environmental Impact Statement for a Geologic Repository for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain, Nye County, Nevada*.
DOE/EIS-0250F, U.S. Department of Energy, Washington, D.C.

DOE. 2002e. *Radioactive Material Transportation Practices Manual for Use with DOE O 460.2*.
DOE Manual 460.2-1, U.S. Department of Energy, Washington, D.C. Online at:
<http://www.directives.doe.gov/pdfs/doe/doetext/neword/460/m4602-1.pdf>

DOE. 2003a. *Environmental Protection Program*. DOE Order 450.1, U.S. Department of Energy,
Washington, D.C. Online at: <http://www.directives.doe.gov>

DOE. 2003b. *Packaging and Transportation Safety*. DOE Order 460.1B, U.S. Department of Energy,
Washington, D.C. Online at: <http://www.directives.doe.gov>

DOE. 2003c. *Startup and Restart of Nuclear Facilities*. DOE Order 425.1C, U.S. Department of
Energy, Washington, D.C. Online at: <http://www.directives.doe.gov>

DOE. 2003d. *Use of Institutional Controls*. DOE Policy 454.1, U.S. Department of Energy,
Washington, D.C. Online at: <http://www.directives.doe.gov>

Ecology, EPA, and DOE. 1989. *Hanford Federal Facility Agreement and Consent Order*. 89-10 (As
Amended). Washington State Department of Ecology, U.S. Environmental Protection Agency,
U.S. Department of Energy, Richland, Washington. Online at: <http://www.hanford.gov/tpa/tpahome.htm>

Ecology. 2001a. *Dangerous Waste Portion of the Resource Conservation and Recovery Act Permit for
the Treatment, Storage, and Disposal of Dangerous Waste, Revision 7*. Washington State Department of
Ecology Publication Number 94-05-001. Permit Number: WA7890008967. Olympia, Washington.
Online at: <http://www.ecy.wa.gov>

Ecology. 2001b. *Hanford Air Operating Permit*. Washington State Department of Ecology Publication
Number 00-05-006, Olympia, Washington. Online at: <http://www.ecy.wa.gov>

Eckerman, K. F., A. B. Wolbarst, and A. C. B. Richardson. 1988. *Limiting Values of Radionuclide
Intake and Air Concentration and Dose Conversion Factors for Inhalation, Submersion, and Ingestion*.
Federal Guidance Report No. 11. EPA-520/1-88-020, U.S. Environmental Protection Agency,
Washington, D.C.

Eckerman, K. F. and J. C. Ryman. 1993. *External Exposure to Radionuclides in Air, Water, and Soil*,
Federal Guidance Report No. 12. EPA 402-R-93-081, U.S. Environmental Protection Agency,
Washington, D.C.

EPA. 1994. "Hazardous and Solid Waste Amendments Portion of the Resource Conservation and Recovery Act Permit for the Treatment, Storage, and Disposal of Hazardous Waste." September 28, 1994. U.S. Environmental Protection Agency, Region 10, Seattle, Washington. Online at: [http://yosemite.epa.gov/R10/OWCM.NSF/72b5220edcd9cf5b88256500005decf3/bdb1d43aa85483c5882569fa00660a3a/\\$FILE/hswa-per.pdf](http://yosemite.epa.gov/R10/OWCM.NSF/72b5220edcd9cf5b88256500005decf3/bdb1d43aa85483c5882569fa00660a3a/$FILE/hswa-per.pdf)

EPA. 2000. "Framework Agreement for Management of Polychlorinated Biphenyls (PCBs) in Hanford Tank Waste." August 31, 2000. U.S. Environmental Protection Agency, Region 10, Seattle, Washington. Online at: <http://yosemite.epa.gov/R10/OWCM.NSF/72b5220edcd9cf5b88256500005decf3/ce50d3fe12e371f488256a00006ffa0f?OpenDocument>

Hanford Reach Act. 1988. Public Law No. 100-605 as amended by Public Law 104-333. Online at: http://206.61.210.104/pl/iap/html/body_apx-a.htm

Poston, T. M., R. W. Hanf, R. L. Dirkes, and L. F. Morasch. 2002. *Hanford Site Environmental Report for Calendar Year 2001*. PNNL-13910, Pacific Northwest National Laboratory, Richland, Washington. Online at: <http://hanford-site.pnl.gov/envreport/2001/index.htm>

Treaty with the Walla Walla, Cayuse and Umatilla. 1855. June 9, 1855, 12 Stat. 945.

Treaty with the Yakama. 1855. June 9, 1855, 12 Stat. 951.

Treaty with the Nez Perces. 1855. June 11, 1855, 12 Stat. 957.

WAC 173-216. "State Waste Discharge Permit Program." Washington Administrative Code, Olympia, Washington. Online at: <http://www.leg.wa.gov/wac/index.cfm?fuseaction=chapterdigest&chapter=173-216>

WAC 173-218. "Underground Injection and Control Program." Washington Administrative Code. Olympia, Washington. Online at: <http://www.leg.wa.gov/wac/index.cfm?fuseaction=chapterdigest&chapter=173-218>

WAC 173-303. "Dangerous Waste Regulations." Washington Administrative Code, Olympia, Washington. Online at: <http://www.leg.wa.gov/wac/index.cfm?fuseaction=chapterdigest&chapter=173-303>

WAC 173-340. "Model Toxics Control Act – Cleanup." Washington Administrative Code, Olympia, Washington. Online at: <http://www.leg.wa.gov/wac/index.cfm?fuseaction=Section&Section=173-340>

WAC 173-400. "General Regulations for Air Pollution Sources." Washington Administrative Code, Olympia, Washington. Online at: <http://www.leg.wa.gov/wac/index.cfm?fuseaction=chapterdigest&chapter=173-400>

WAC 173-460. "Controls for New Sources of Toxic Air Pollutants." Washington Administrative Code, Olympia, Washington. Online at:
<http://www.leg.wa.gov/wac/index.cfm?fuseaction=chapterdigest&chapter=173-460>

WAC 173-480. "Ambient Air Quality Standards and Emission Limits for Radionuclides." Washington Administrative Code, Olympia, Washington. Online at:
<http://www.leg.wa.gov/wac/index.cfm?fuseaction=chapterdigest&chapter=173-480>

WAC 197-11. "SEPA Rules." Washington Administrative Code, Olympia, Washington. Online at:
<http://www.leg.wa.gov/wac/index.cfm?fuseaction=chapterdigest&chapter=197-11>

WAC 246-247. "Radiation Protection – Air Emissions." Washington Administrative Code, Olympia, Washington. Online at:
<http://www.leg.wa.gov/wac/index.cfm?fuseaction=chapterdigest&chapter=246-247>

WAC 246-272. On-Site Sewage Systems. Washington Administrative Code, Olympia, Washington. Online at: <http://www.leg.wa.gov/wac/index.cfm?fuseaction=chapterdigest&chapter=246-272>

Washington State Clean Air Act. RCW 70.94. Online at: <http://slc.leg.wa.gov>

Washington State Environmental Policy Act. RCW 43.21C. Online at: <http://slc.leg.wa.gov>

Washington State Hazardous Waste Management Act. RCW 70.105. Online at: <http://slc.leg.wa.gov>

Washington State Model Toxics Control Act. RCW 70.105D. Online at: <http://slc.leg.wa.gov>

Washington State Water Pollution Control Act. RCW 90.48. Online at: <http://slc.leg.wa.gov>

Waste Isolation Pilot Plant Land Withdrawal Act (Public Law 102-579).

Waste Isolation Pilot Plant Land Withdrawal Act Amendments (Public Law 104-201).